

PATENT COOPERATION TREATY

PCT



INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PH-21692-PCT	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/KR2004/001845	International filing date(<i>day/month/year</i>) 24 JULY 2004 (24.07.2004)	Priority date(<i>day/month/year</i>) 26 JULY 2003 (26.07.2003)	
International Patent Classification (IPC) or national classification and IPC IPC7 C08F 8/30			
Applicant POSTECH FOUNDATION et al			

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☐ (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____ containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:
 - ☒ Box No. I Basis of the report
 - ☐ Box No. II Priority
 - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - ☐ Box No. IV Lack of unity of invention
 - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - ☐ Box No. VI Certain documents cited
 - ☐ Box No. VII Certain defects in the international application
 - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 14 FEBRUARY 2005 (14.02.2005)	Date of completion of this report 24 NOVEMBER 2005 (24.11.2005)
Name and mailing address of the IPEA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer BAHN, Yong Byung Telephone No. 82-42-481-5539 

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/KR2004/001845

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This report is based on translations from the original language into the following language _____ which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
 - ☒ the international application as originally filed/furnished
 - ☐ the description:
 - pages _____ as originally filed/furnished
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - ☐ the claims:
 - pages _____ as originally filed/furnished
 - pages* _____ as amended (together with any statement) under Article 19
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - ☐ the drawings:
 - pages _____ as originally filed/furnished
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - ☐ the sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
 - ☐ the description, pages _____
 - ☐ the claims, Nos. _____
 - ☐ the drawings, sheets _____
 - ☐ the sequence listing (*specify*): _____
 - ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - ☐ the description, pages _____
 - ☐ the claims, Nos. _____
 - ☐ the drawings, sheets _____
 - ☐ the sequence listing (*specify*): _____
 - ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/KR2004/001845

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**I. Statement**

Novelty (N)	Claims	<u>1-23</u>	YES
	Claims	<u>NONE</u>	NO
Inventive step (IS)	Claims	<u>1-23</u>	YES
	Claims	<u>NONE</u>	NO
Industrial applicability (IA)	Claims	<u>1-23</u>	YES
	Claims	<u>NONE</u>	NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: WO 02/096553 A2

D2: US 6,365,734 B1

D3: JP 11-217557 A

I. Novelty and Inventive Step

The present invention relates to a cucurbituril bonded polymer, a cucurbituril derivative-containing copolymer, a stationary phase and a column using the polymer or the copolymer, which are useful for separation and removal of substances.

D1 relates to novel inorganic absorbent composites consisting of an open-pore, solid, and inorganic matrix, comprising cucurbiturils which are chemically linked in the matrix. D2 relates to the composition, and methods of preparation and uses novel cucurbituril derivatives having various repeating units and cavities of various sizes. D3 relates to a dye removing agent comprising a cucurbituril precursor as an active ingredient which is a condensate of glycoluril and formaldehyde and substantially does not form a complete cyclic structure.

The subject matter of the present invention differs from the disclosure of D1-D3 mainly in a polymer in which a particle-type polymer with a reactive end-substituted group is linked to a cucurbituril derivative of Formula 1 by a covalent bond; and in a monolithic column obtained by a monomer with a substituted or unsubstituted alkenyl group of C3-C20 and allyloxycucurbituril of Formula 1.

It cannot be considered obvious to a person skilled in the art, with knowledge of the cited documents, to link polymer with a reactive end-substituted group and cucurbiturils by a covalent bond and a monolithic column obtained by using said polymer.

Therefore, claims 1-23 of the present invention are considered to meet the requirements of Article 33(2) and 33(3).

II. Industrial Applicability

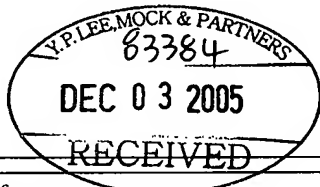
The subject matter of claims 1-23 is considered to be industrially applicable under PCT Article 33(4).

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING

To:
LEE, Young-Pil

The Cheonghwa Bldg., 1571-18 Seocho-dong, Seocho-gu,
Seoul 137-874, Republic of Korea



PCT

**NOTIFICATION OF TRANSMITTAL OF
INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY**
(Chapter II of the Patent Cooperation Treaty)

(PCT Rule 71.1)

Date of mailing
(day/month/year) 28 NOVEMBER 2005 (28.11.2005)

Applicant's or agent's file reference
PH-21692-PCT

IMPORTANT NOTIFICATION

International application No.

PCT/KR2004/001845

International filing date (day/month/year)

24 JULY 2004 (24.07.2004)

Priority date (day/months/year)

26 JULY 2003 (26.07.2003)

Applicant

POSTECH FOUNDATION et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits here with the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the *PCT Applicant's Guide*.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed invention is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the IPEA/KR



Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

COMMISSIONER

Telephone No. 82-42-481-5762

